

# **AN EXPLORATION OF TRIANGULATION OF METHODOLOGIES: QUANTITATIVE AND QUALITATIVE METHODOLOGY FUSION IN AN INVESTIGATION OF PERCEPTIONS OF TRANSIT SAFETY**

## **PROBLEM STATEMENT**

Methodological debate is necessarily pervasive in most fields of applied research. The undertaking of a research study requires great consideration as to the appropriateness and validity of any chosen method. The types of data sought, what is to be done with the data, available resources, time constraints, sampling capabilities, and skills of the researchers are some of the factors that contribute to the determination of what research methods are best for any given project. There are generally considered to be two methodological approaches to data collection and analysis: qualitative and quantitative.

Qualitative researchers reject the idea that human behavior can be studied with the same methods as the natural or physical sciences, assuming that human behavior is always bound to the context in which it occurs, and, therefore, behavior must be studied holistically rather than through manipulation. Qualitative research is an intensely personal and subjective style of research. On the other hand, quantitative researchers strive for testable and confirmable theories that can explain how one set of variables is related to another. Quantitative research reduces human behavior to a set of finite characteristics that can be quantified and operationalized so that they can easily be tested.

Over the past decade, there has been an increasing trend of blending quantitative and qualitative data within a study to provide a broader, deeper perspective. This approach is called *methods triangulation*. Both quantitative and qualitative research designs seek reliable and valid results. Data that are consistent or stable as indicated by the researcher's ability to replicate the findings is of major concern in the quantitative arena, while validity of the qualitative findings are paramount so that data are representative of a true and full picture of constructs under investigation. By combining methods, advantages of each methodology complements the other making a stronger research design with resulting more valid and reliable findings. The inadequacies of individual methods are minimized and more threats to internal validity are realized and addressed.

## **OBJECTIVES**

The objective of this research is to parallel a quantitative and a qualitative bus transit research study and to analyze the results in terms of integrating the two methods. Researchers will address the level of similarity between the conclusions reached and the proposed reasons for any major differences, which should assist in the development of recommendations to improve the perceptions of transit safety and security among non-users, in addition to providing a better understanding of qualitative methods as they may be applied in transit research.

## FINDINGS AND CONCLUSIONS

Ultimately, people do not see bus transit as a viable mode of transportation mostly because it is inconvenient. Buses do not run frequently enough or cover enough area. The bus system is hard to use, and using the routes and transferring are complicated. Buses are sometimes hard to access, and bus stops are poorly maintained and in physically unsafe and/or unsecured areas. The result of the triangulation of methodologies results in a more complete picture that explains exactly why people prefer to use their cars. Only in the most dire circumstances would most respondents use bus transit. Both types of methodology results support this conclusion. However, the quantitative portion allows linkage to demographic characteristics of respondents, while the qualitative results allow expansion of the attitudes behind these decisions. For instance, the quantitative results showed that women, senior citizens, and minorities were worried for their safety. However, a more complete picture would include that while senior citizens are worried for their safety, they see a time when they might need to use bus transit, and that personal security is not as prohibitive to the utilization of bus services as is convenience. It is important to get the full picture so that those who are in bus transit marketing positions can understand both the attitudes and the motivations of demographic groups that could become riders under the right conditions.

## BENEFITS

In these studies, *methods triangulation* was employed. This approach involves using more than one research method or data collection technique, because each addresses a different dimension of the topic. In the current studies, both qualitative and quantitative methods of data collection on perceptions of transit safety were used. For the qualitative methods, six focus groups and 20 in-depth telephone interviews were completed. For the quantitative methods, a more simplistic multiple-choice questionnaire was used for five hundred phone interviews.

Triangulation provides confirmation and completeness. Triangulation is not simply combining different types of data, but it attempts to relate the two types of information so as to leave the validity of each type of information intact. The use of triangulation allows researchers to capture a more complete, holistic and contextual portrayal and reveal the varied dimensions of a given phenomena, with each source contributing an additional piece to the puzzle. In using triangulation, bias can be minimized and validity enhanced. Neither the qualitative nor the quantitative method alone could yield the results of the two combined. The sum of the whole is greater than its parts.

Both quantitative and qualitative research designs seek reliable and valid results. Data that are consistent or stable, as indicated by the researcher's ability to replicate the findings, is of major concern in the quantitative arena, while validity of the qualitative findings are paramount to representing a true and full picture of the constructs under investigation.

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